

2003 Gilbert Water Quality Report

and it is generally taken that a rating of 5 grains per gallon is soft water. Here in Gilbert our water sources range from 2.9 to 13 grains per gallon and is considered moderately hard water. A softener basically functions as an ion exchange where the sodium or potassium salt dislodges the calcium from the magnesium thus 'softening' the water. Again, every manufacturer has different specifications and equipment maintenance requirements. Also, consult with a physician as there are some medical benefits and pitfalls to using this type of equipment with your water.

The Town does not encourage the use of reverse osmosis or softening as the quality of water delivered is superb. However, we are more than happy to assist any consumer in compiling information on current water quality data to help them make a well-informed decision for any equipment they decide to purchase.

Tap water or bottled water? Are there any health concerns?

Since a significant number of bottle water companies use municipal drinking water as their source, it may reasonably be said that the basic quality of water between these two water options is similar. The difference comes into play with additional filtering and disinfection practices used by some bottle water providers in addition to refrigeration. Bottling companies, on a whole, are not held to as high a standard as your municipal or private water provider simply because they are an end user just as the average consumer.

The Town does not wish to deter anyone from choosing to drink bottled water but would like to inform the consumer that they can ask their provider for additional information on water quality and treatment practices for their product being purchased.

How you can collect more information on your water.

Listed below are some valuable resources for locating more information on your water quality and on commonly asked for departments within the Town of Gilbert. Please don't hesitate to contact any resource should you have any questions.

- Town of Gilbert, www.ci.gilbert.az.us
- Water Quality (480) 503-6378
- Utilities (480) 503-6800
- Public Works (480) 503-6400
- Arizona Department of Environmental Quality, www.adeq.state.az.us
- Maricopa County Environmental Health Services, www.maricopa.gov/envsvc
- Environmental Protection Agency, www.epa.gov/ogwdw
- Safe Drinking Water Hotline, 800/426-4791
- Tap Into Quality, www.tapintoquality.com

Data Table

Abbrev. A.L.	Term/Phrase Action Level	Definition
		The concentration of an analyte which if exceeds triggers treatment or other requirements which a water system must follow.
MCL	Maximum Contaminant Level	The highest level of an analyte allowed in drinking water. Value is set as close to the MCLG value as possible (when given) by using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal	The level of an analyte below which there is no known or expected health risk.
NTU	Nephelometric Turbidity Unit	The standard measure of turbidity (clarity) in water.
pCi/L	Picocuries Per Liter	A measure of the radioactivity of a substance.
mg/L	Milligrams Per Liter	A measure of concentration and is equivalent to PPM (parts per million). A good analogy is one piece of blue rice in one million pieces of white rice.
T.T.	Treatment Technique	A required process intended to reduce the level of an analyte in drinking water.

2002 Detection Data on Surface and Ground Water Monitoring

Inorganic Analytes

Name	Units	High	Range	MCL	MCLG	Common Source(s)
Arsenic	mg/L	0.027	< 0.004 - 0.027	0.01 ^a	0 ^a	Naturally occurring, natural deposits erosion
Barium	mg/L	0.056	< 0.01 - 0.056	2	2	Naturally occurring, natural deposits erosion
Chromium	mg/L	0.02	< 0.010 - 0.02	0.1	0.1	Naturally occurring, natural deposits erosion
Copper	mg/L	0.026	< 0.010 - 0.026	T.T., A.L. = 1.3	1.3	Erosion of natural deposits, corrosion of household plumbing systems
Fluoride	mg/L	1.5	< 0.40 - 1.5	4.0	4.0	Naturally occurring, natural deposits erosion
Nitrate as N	mg/L	13 ^b	1.7 - 13	10	10	Naturally occurring, fertilizer run-off, and leaching

Organic Analytes

Name	Units	High	Range	MCL	MCLG	Common Source(s)
Bromoform	mg/L	0.013	< 0.005 - 0.013	No MCL	No MCLG	By-product of drinking water disinfection
Chlorodibromomethane	mg/L	0.015	< 0.005 - 0.015	No MCL	No MCLG	By-product of drinking water disinfection
Bromodichloromethane	mg/L	0.0053	< 0.005 - 0.0053	No MCL	No MCLG	By-product of drinking water disinfection
Chloroform	mg/L	0.001	< 0.005 - 0.001	No MCL	No MCLG	By-product of drinking water disinfection

Radiochemical Species

Name	Units	High	Range	MCL	MCLG	Common Source(s)
Gross Alpha	pCi/L	17.1 ^c	0 - 17.1	15	0	Naturally occurring, natural deposits erosion
Uranium	pCi/L	16	< 0.4 - 16	30 ^d	0	Naturally occurring, natural deposits erosion
Radium 226	pCi/L	2.2	0 - 2.2	5	0	Naturally occurring, natural deposits erosion
Radon 222	pCi/L	394	72 - 394	No MCL	No MCLG	Naturally occurring, natural deposits erosion

Aggregate and corrosive properties of water (no MCL or MCLG's designated)

Name	Units	High	Range
Alkalinity	mg/L	160	54 - 160
Calcium	mg/L	88	17 - 88
Chloride	mg/L	440	160 - 440
Hardness as Calcium Carbonate	gr/gal	12.9	2.5 - 12.9
pH	Std. Unit	8.6	6.69 - 8.60
Sodium	mg/L	260	87 - 260
Sulfate	mg/L	130	43 - 130
TDS, total dissolved solids	mg/L	1100	500 - 1100

The analysis of these analytes are voluntary and are related primarily to taste, odor, and appearance of water. A good number of customer calls throughout the year involve questions regarding these numbers. The compound most frequently asked for is hardness as it is relevant to the formation of calcium deposits on fixtures and the operation of water softeners.

^a These arsenic values are effective as of January 23, 2006. Until then, the MCL is 0.05 mg/L and there is no MCLG.

^b This reading was taken from a ground water well that is being blended with surface water under an approved blending plan to reduce the levels of this analyte in drinking water. The value is not in violation given the approved blending, and the blended water was monitored with values far below the MCL.

^c Although the highest reading is above the given MCL, the MCL is actually based on the gross alpha reading less the uranium reading. The uranium reading for the sampling that yielded a 17.1 pCi/L for gross alpha was 14 pCi/L. Therefore, the actual gross alpha reading is 3.1 pCi/L on this sample.

^d MCL will be in effect as of 12-08-03.

2002 Detection Data on Distribution System Monitoring

Disinfection By-products

Name	Units	High	Range	MCL	MCLG	Common Source(s)
Haloacetic Acids	mg/L	0.0092	< 0.0050 - 0.0092	0.06	No MCLG ^e	By-product of drinking water disinfection
Total Trihalomethanes	mg/L	0.052	< 0.0005 - 0.052	0.08	No MCLG ^f	By-product of drinking water disinfection

Biological Species

Name	# of Tests Taken	# of Positive Tests	MCL	MCLG	Common Source(s)
Coliforms, Total	1440 or 120 per month	1, retest was negative	No more than 5% of the monthly samples may be total coliform positive.	0	Naturally occurring
Coliforms, Fecal	1440 or 120 per month	0	0	0	Human and animal fecal wastes

Turbidity

Name	Units	High	Treatment Technique (T.T.)	MCLG	Common Source(s)
Turbidity	NTU	0.142	The turbidity of filtered water should be equal to or less than 0.5 NTU in 95% of all measurements taken each month, and shall not exceed 5 NTU at any given time.	No MCLG	Soil run off

^e While there is no MCLG for the group there is one analyte, Trichloroacetic acid, of this group that has a MCLG of 0.3 mg/L.

^f While there is no MCLG for the group there is one analyte, Dibromochloromethane, of this group that has a MCLG of 0.06 mg/L.

Special Insert

2003 Report

Gilbert Water Quality

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ing regulations quality adults treatment

river ground delivery gallons wells taste

health odor agriculture tap hardness

reverse osmosis chlorine water thirst

clean purity children softening plentiful



supply water crops treatment wet safe

elderly informed report drinking regula-

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Dear Water Customer:

Water has, and always will be, a vital component of Gilbert's economy, quality of life and sustainability. The very reason the community was established was due to a plentiful supply of water available to grow crops of alfalfa, cotton and other staples of the early 1900s.

Today, the Town of Gilbert operates a clean, efficient and reliable water system that serves a population of more than 142,800. The Town recently expanded its Water Treatment Plant, more than doubling the capacity to safely treat our water supply. We recently incorporated a new disinfection system using an ozone process, which will improve the quality of the water.

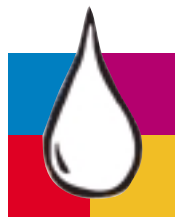
The Town has prepared this Consumer Confidence Report in accordance with requirements of the Safe Drinking Water Act. The intent of the report is to inform you of where our water comes from, how and why it is treated, and what all the data we collect really means to you. The goal is that you will be assured the water you drink is safe and that you will be better informed to participate in the important water-related decisions for our community.

After you read this report, I encourage you to keep it with other valuable reference materials. Please do not hesitate to contact Town employees via the e-mail addresses and phone numbers provided in this report. As we face tomorrow's challenges together, we want you to feel comfortable in having open discussions with us about your drinking water.

Sincerely,

Lannie K. Frost

Lonnie Frost
Public Works Director
Town of Gilbert



**WATER
USE IT
WISELY**

Town of
Gilbert
Water
Conservation
Office
(480) 503-6098

Welcome and thank you for choosing the Town of Gilbert for your residence. We are proud to announce another spectacular year for surpassing Federal and State regulations on water production and treatment to provide you, the consumer and our customer, with the best quality product (water) possible.

Following is a Consumer Confidence Report (CCR) also known as the water quality report for water data collected in the year 2002. The Town has been mandated by Federal law since 1998 to send every resident a copy of this report on an annual basis. Copies of previous reports can be located on the Town's website at www.ci.gilbert.az.us or you can call 480/503-6378 to have a copy mailed to you or for water quality questions in general. We encourage all consumers to contact the Town for more information not only on water quality issues but on any issue of concern and a directory is included at the end of this report.

Within this report you will find information on water sources, compliance with regulations regarding water quality, a listing of detected analytes along with a list of common water parameters, and some educational information on your water system and upcoming regulations that may affect future qualities and treatment of water.

Este informe contiene información importante acerca de su agua potable. Si desea un copia de este informe en español o tiene pregunta sobre el, llámenos a (480) 503-6372.

Water sources and systems—where and how your water is delivered.

The Town of Gilbert has two main water sources, surface and ground waters. Surface water is delivered to the Town via the Eastern Canal which is part to the Salt River Project (SRP) canal system. The canal can be filled at any time with water from or any combination thereof of waters from the Salt River (Lakes) System including the Verde River, ground water from wells operated by SRP, and possibly water from the Central Arizona Project (CAP). Ground water is supplied to the Town from its 12 ground wells located throughout the Town. Currently the Town is in progress on the location, drilling, and pumping of three additional wells which are anticipated to be added into the water sys-

tem within the next two to three years.

Ground and surface waters are delivered from their points of entry (POE), the Water Treatment Plant (WTP) and each well site, by the distribution system. The distribution system is ever changing with the growth of the Town and currently includes 539 miles of pipeline that ranges in diameter from 6 inches to 36 inches. The average pressure of water delivery throughout the Town is about 60 pounds per square inch (PSI).

Ground water is either direct pumped into the distribution system or is indirectly added to the system using reservoirs. On average, a ground water well can produce just over 2 million gallons of water a day (MGD) with a total volume of 29 MGD between all 12 wells. This volume only

accounts for just over half of the needed water to sustain the Town during high demands periods of time primarily the summer. In 2002, the highest day for water demand was July 1st with 50.1 MGD being used in the Town, and

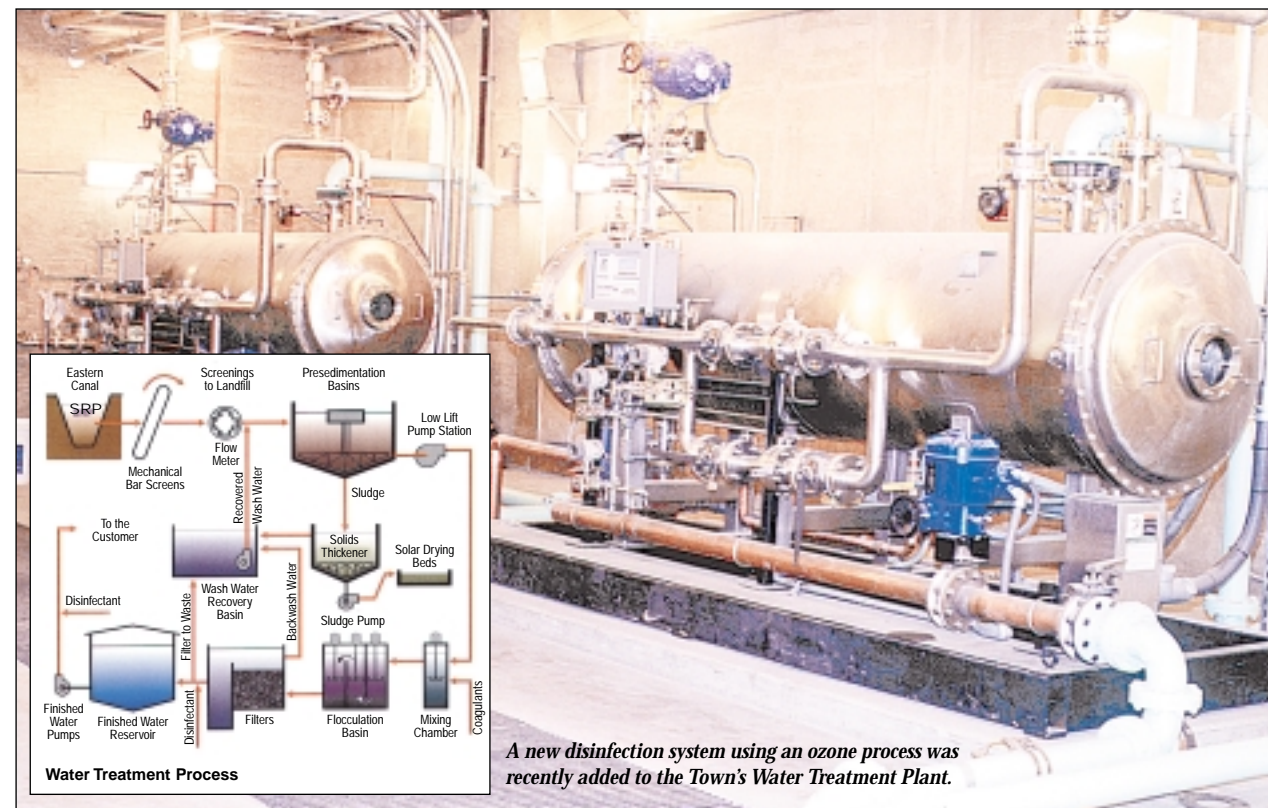
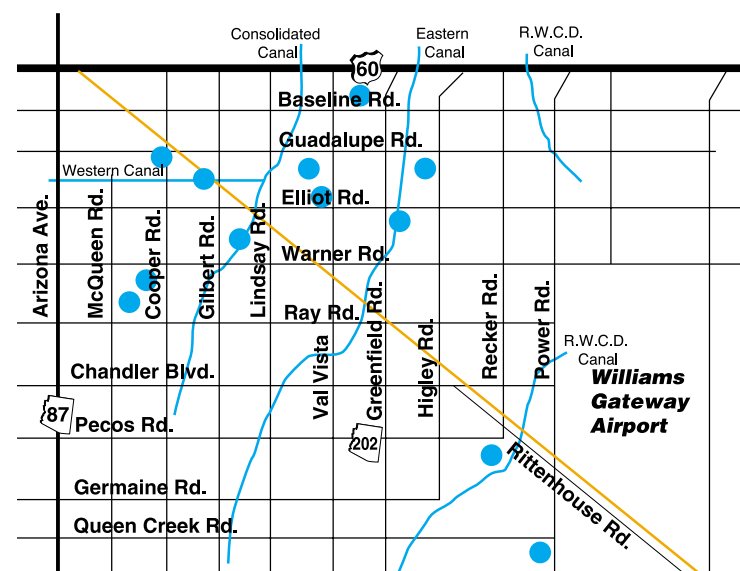
the average demand throughout the year is 31.6 MGD or approximately 2,000 average-sized swimming pools.

The remaining water need is satisfied with surface water that is treated by the Water Treatment Plant (WTP). The WTP just finished an expansion project and can now produce 40 million gallons a day if needed. The treatment process is illustrated in the diagram above. The expansion of the WTP not only provides increased water production and capacity but helps to support our efforts in reducing the amount of water pumped from ground wells respecting the Groundwater Management Act of 1980.

Treatment at the WTP, in short, begins with screening large debris items from the water such as plant material and trash. Coagulation and flocculation follow as a step series to trap small particles into larger particles using a chemical 'glue' that can be removed from the water using filters. The clear water is then filtered again and chlorinated before entering the distribution system.

Along with the expansion of the WTP, ozone disinfection has been added as a second avenue of disinfection for water. Although the filtration system in the Town's surface water treatment plant exceeds the EPA requirements for the removal of microorganisms including giardia and cryptosporidium, ozone will be useful in the future as regulation changes regarding disinfection are being discussed. Chlorination still remains the primary source of disinfection and is used as a safeguard for preserving the removal of microbiological organisms from treated water as it travels from the WTP to each individual residence. Chlorine levels are monitored every two hours at

Town of Gilbert Well Locations



the WTP and we have staff that checks multiple locations throughout the Town on a daily basis to ensure that proper levels of chlorine residuals are maintained to protect public health.

Water Quality and how your water is guaranteed safe.

The Safe Drinking Water Act of 1974 and subsequent amendments by the Environmental Protection Agency (EPA) dictate under Federal law that the Town monitors water sources and distribution systems to ensure a safe drinking water supply for the general population. Following the provisions of the EPA the Arizona Department of Environmental Quality (ADEQ) and Maricopa County set regular schedules for monitoring over a wide range of parameters and holds the right to tighten, but not loosen, Federal regulatory standards.

The Town took nearly 2000 water samples in the year 2002 covering over 100 parameters which included the analysis for inorganic and organic analytes (metals, pesticides, and herbicides to name a few groups), microbiological organisms, disinfection by-products, and radiochemical species in drinking water. Samples were collected from the surface and ground water sources and in the distribution system at pre-selected locations throughout the Town*.

In addition, the WTP staff monitor for turbidity and chlorine residual levels every two hours, and multiple chemical parameters every eight hours to ensure that water production and treatment is optimal. The data table below lists any detected analytes as well as general parameters of interest to the public. It is important to note that the presence of analyte does not necessarily indicate that water poses a health risk or concern. With that stated, the table illustrates that no analyte was found to be in any violation or excessive presence in our water system.

** The Town does not sample water from inside resident's homes rather from outside taps/hose bibs on the front of a home. Should a time come when a sample is needed from within a home, you will be contacted in advance by mail or phone for permission and an appointment will be established. Any Town personnel that visit a residence will be in a Town vehicle and will readily show identification for your safety.*

See back page for data table including term definitions.

Immunocompromised persons such as cancer patients, organ transplant donors/recipients, those with HIV/AIDS, the elderly and infants, or those with any other immune system disorder can be more vulnerable to certain compounds and should consult with their health care providers regarding advice on drinking water.

Upcoming regulatory issues and health effects on water quality.

Arsenic

While your drinking water meets EPA standards for arsenic, it does contain low levels of arsenic. EPA standards balance the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer. EPA continues to research the health effects of arsenic levels and their relevance to health.

The MCL for arsenic will be dropping to 0.01 mg/L as of January 23, 2006 from the current level of 0.05 mg/L. Currently there are two ground water wells in the Town that are just over the new level and treatment techniques are being researched to ensure that these wells comply with the new standard by the due date. More information on the arsenic ruling can be found at any of the contacts listed at the end of this report.

Nitrate

Gilbert has long been a community of agriculture and remains so today although the numbers of farmed acres are lower. Gilbert also has many dairies. Due to the agricultural and dairy business in Gilbert, we usually see nitrate levels that are over 50% of the MCL (5 mg/L) on our ground wells due in part to fertilizer and manure run-off which contain high levels of nitrate. While none of the water that is received at any residence is over the given MCL (10 mg/L), it is prudent on our part to inform the consumer that nitrate levels in our area are slightly higher than the average. Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. Please discuss concerns on nitrate levels with your pediatrician.

Taste, odor, and hardness—are reverse osmosis and softeners necessary?

The greatest numbers of calls received on water quality involve issues of taste, odor, and hardness. All three of these topics are not health related issues but are aesthetic properties of our drinking water and thus, an overall component to the satisfaction of the consumer in regards to the water they receive.

Taste and odor, musty and/or earthy, is a higher concern generally in the later summer months as a result of prolonged sun and heat exposure to our water sources. Part of the story begins with increased algal bloom populations in the lakes and canals due to large amounts of sunlight in the summer leading to the release of greater amounts of Geosmin and MIB, biochem-

ical by-products of the algae life cycle. While treatment practices remove all algae from drinking water for safe consumption, these compounds are left behind. Geosmin can lead to a musty taste/odor and MIB can lead to an earthy taste/odor. Either or both of these compounds can be present throughout the year depending on lake turn over and weather patterns but are greatest towards the end of summer and the early part of fall. The second part of the story is simply temperature. Water can pump out of ground wells at 98o Fahrenheit year round from almost 1000 feet below the surface. During the summer the ground is heated (water lines run below the ground surface) as well as the water in the lakes and canals adding to the overall temperature of the water. A good analogy is cooking—as food cooks there is a greater sense of aroma and taste—the same occurs for our water. The odor and taste from temperature exposure is primarily due to the mineral content in the water, but again, all these factors are aesthetic and pose no concern to health.

Taste and odor can be greatly diminished in drinking water using a couple tips. First, fill a pitcher with tap water and store in the refrigerator to chill. Adding ice cubes to a glass of water will not be effective in chilling your drink as the water actually warms the ice cubes rather than the ice cubes chilling the water. A slice of citrus to your water can also reduce taste and odor. Second, a good number of people use inexpensive carbon filters either in their refrigerators, on kitchen sink taps, or on pitchers. The carbon filters out the majority of taste and odor and also reduces the amount of chlorine in the water. (Chlorine is a gas and will escape from your water; leaving the cap off the pitcher or a glass open for a short time will allow the chlorine to leave the water.) Reverse osmosis equipment is not necessary for just taste and odor removal.

Reverse osmosis (RO) is a filtering technique that essentially strips your water of its mineral and chlorine content. Consumers have varied reasons for installing RO in their homes ranging from control of aesthetic water properties to removal of certain compounds depending on their overall general health. Every manufacturer has different specifications on compound removal and equipment maintenance and it is recommended that the consumer do thorough research including consulting with a physician before investing in equipment.

Water 'hardness' is the product of geological location. Arizona is situated on what can be described as a large limestone slab which is composed most importantly of calcium. Calcium in combination with magnesium that occurs naturally in Arizona water sources causes the hardness that every consumer is familiar with in this state. The concentrations of calcium and magnesium together give a hardness rating that can vary widely from state-to-state